Describe The Current Process

Flowchart

Fishbone

Which Tool To Use

Tools

Brainstorm, Pareto, Mind Map

Flowchart

Fishbone, Pareto, Histogram

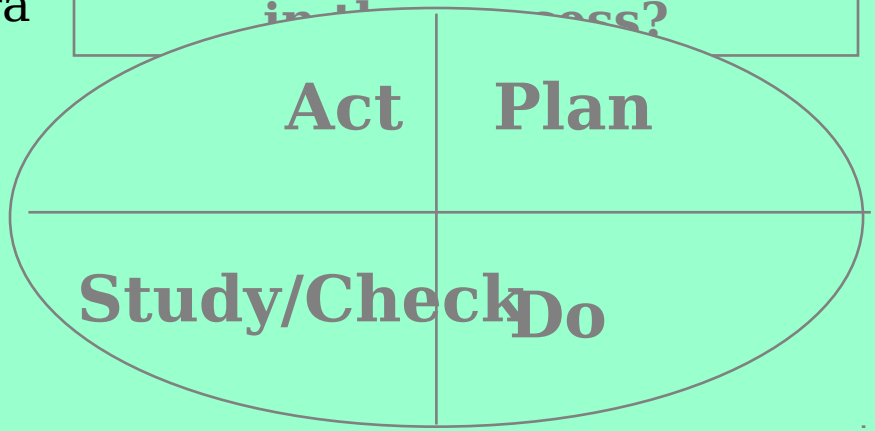
Run and control charts,histogram, pareto, scatter diagrams

What's the question

What tool helps to decide what to improve?

What tool helps to focus improvement efforts?

What tools let us know changes made a difference in the process?



Considerations

Process variation

Special cause

Common cause

Central tendency

Variability

Distribution

Process behavior

Flow Charts

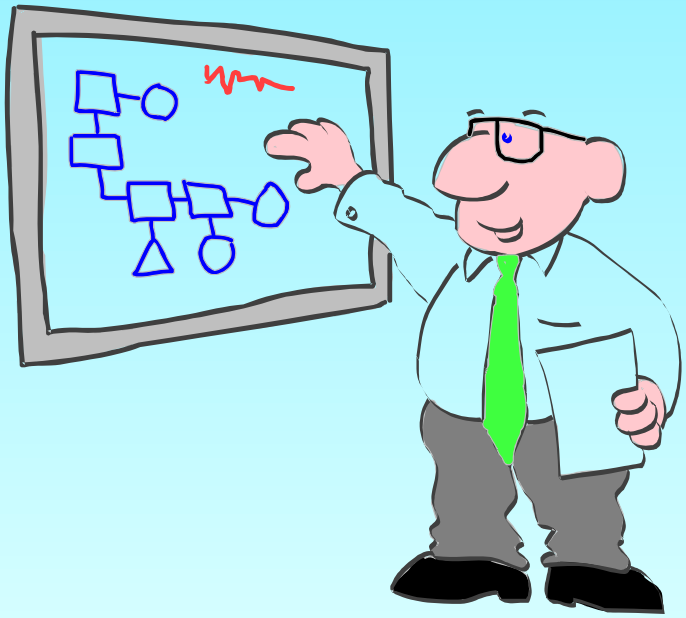
Terminal Objective:

- **Demonstrate the use of a Flowchart to define the current situation**

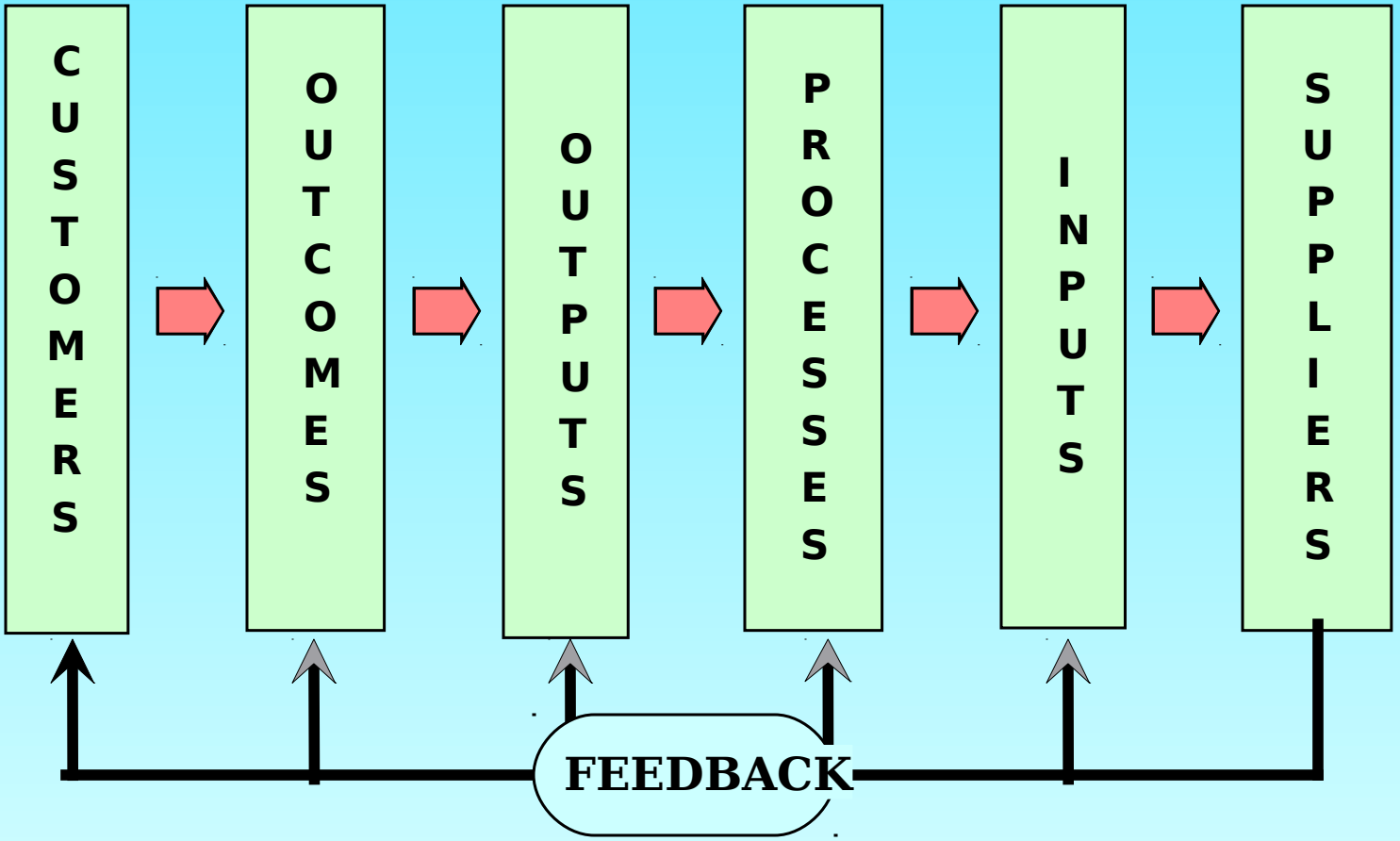
- **Construct a flow chart**

Flowchart

- A picture of the sequence of steps in a process
- Different steps or actions are represented by boxes or other symbols



Macro Flowchart



Macro Flowchart

Suppliers	Inputs	Action	Outputs	Customers	Needs/ Expectations
Physician	Need for Test/Pat	Completed	LRS	Medical Clinic Clerk	Accurate, Complete
Medical Clinic Clerk	LRS Number Label	Attaches	LRS Package	Phlebotomist	Accurate, Complete
Phlebotomist	LRS Package Patient	Draws Blood	Blood Sample	Escort	Accurate, Complete, Timely
Escort	Blood Sample	Delivers	Delivered Blood Sample	Lab Tech	Accurate, Complete, Timely
Lab Tech	Blood Sample	Performs Test	Test Results	Medical Clinic Clerk	Accurate, Complete, Timely
Medical Clinic Clerk	Test Results	Report	Reported Results	Physician	Accurate, Complete, Timely

Deployment Flowchart

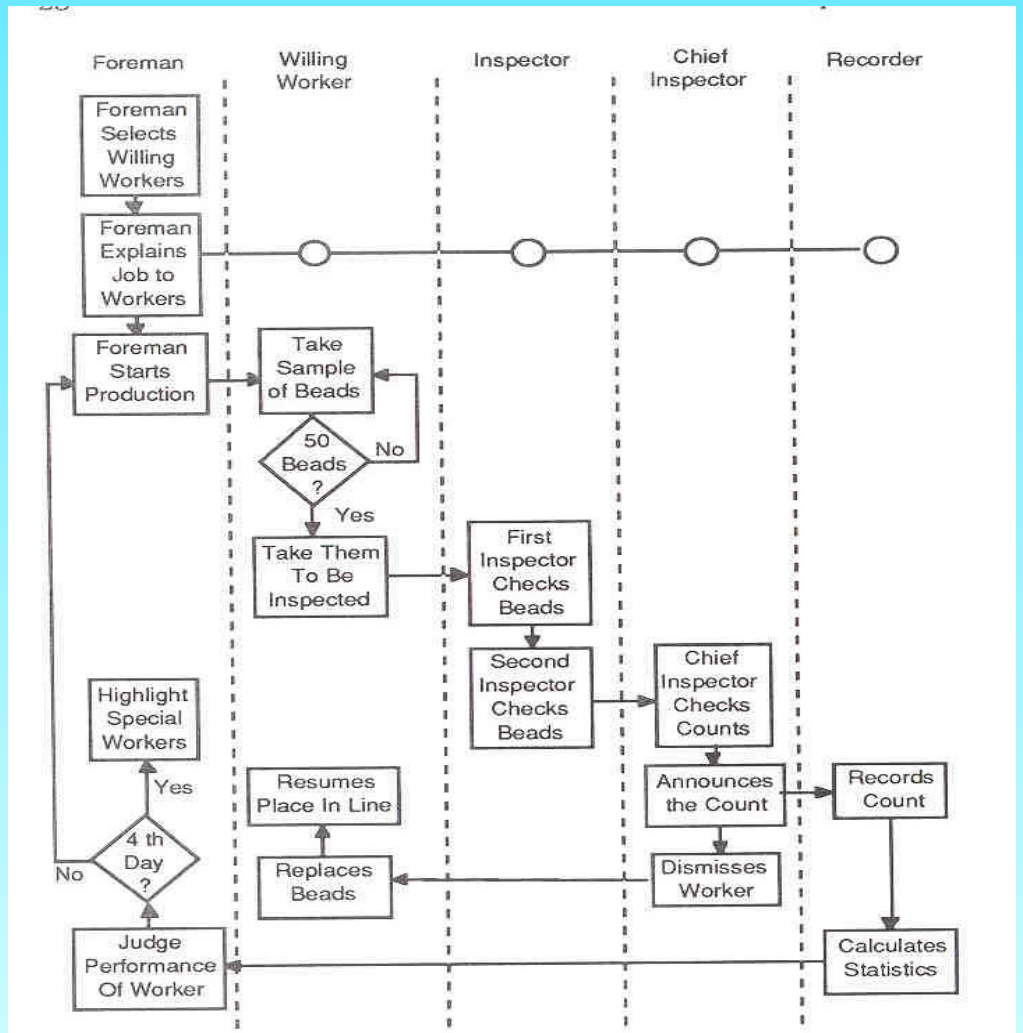
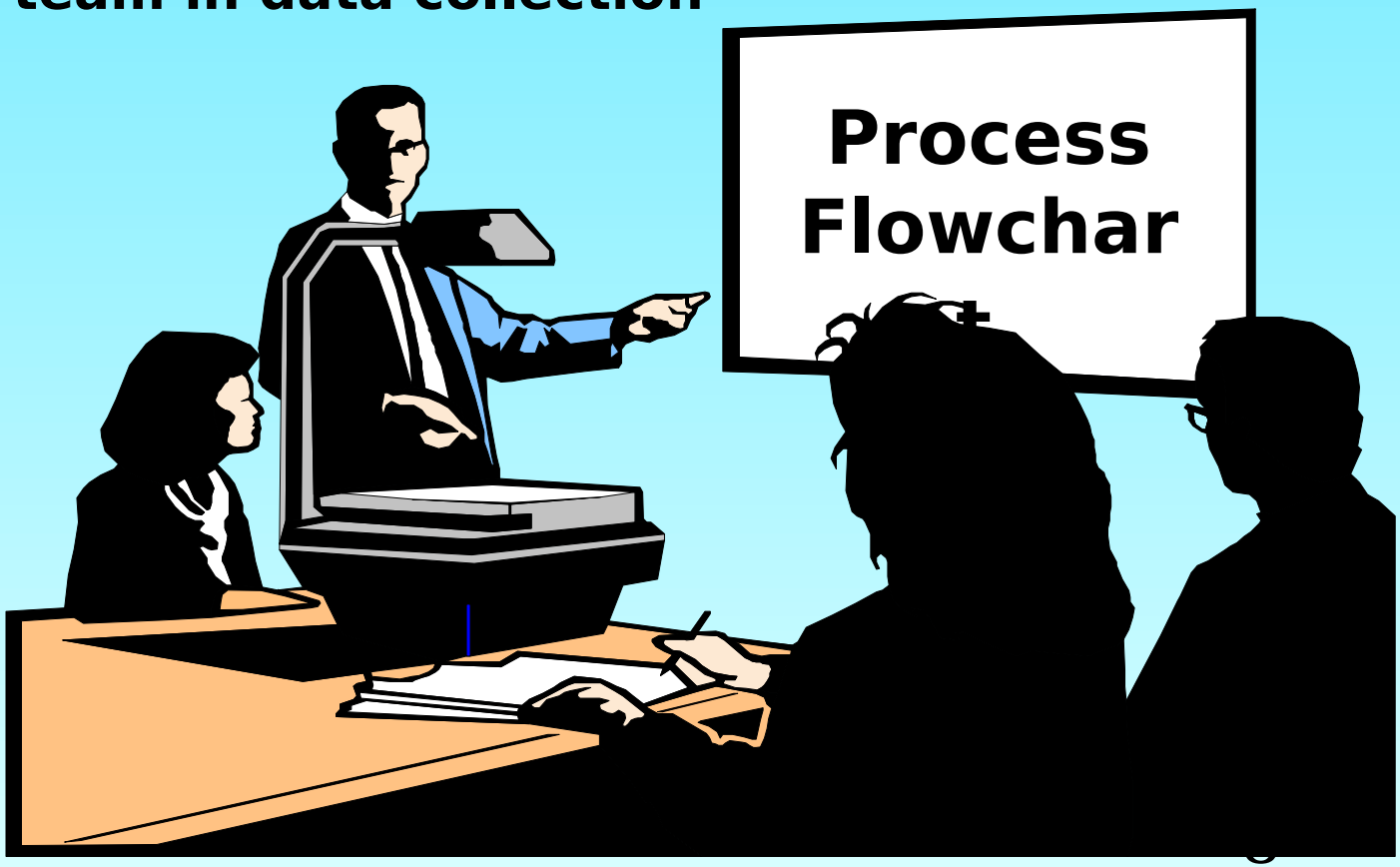


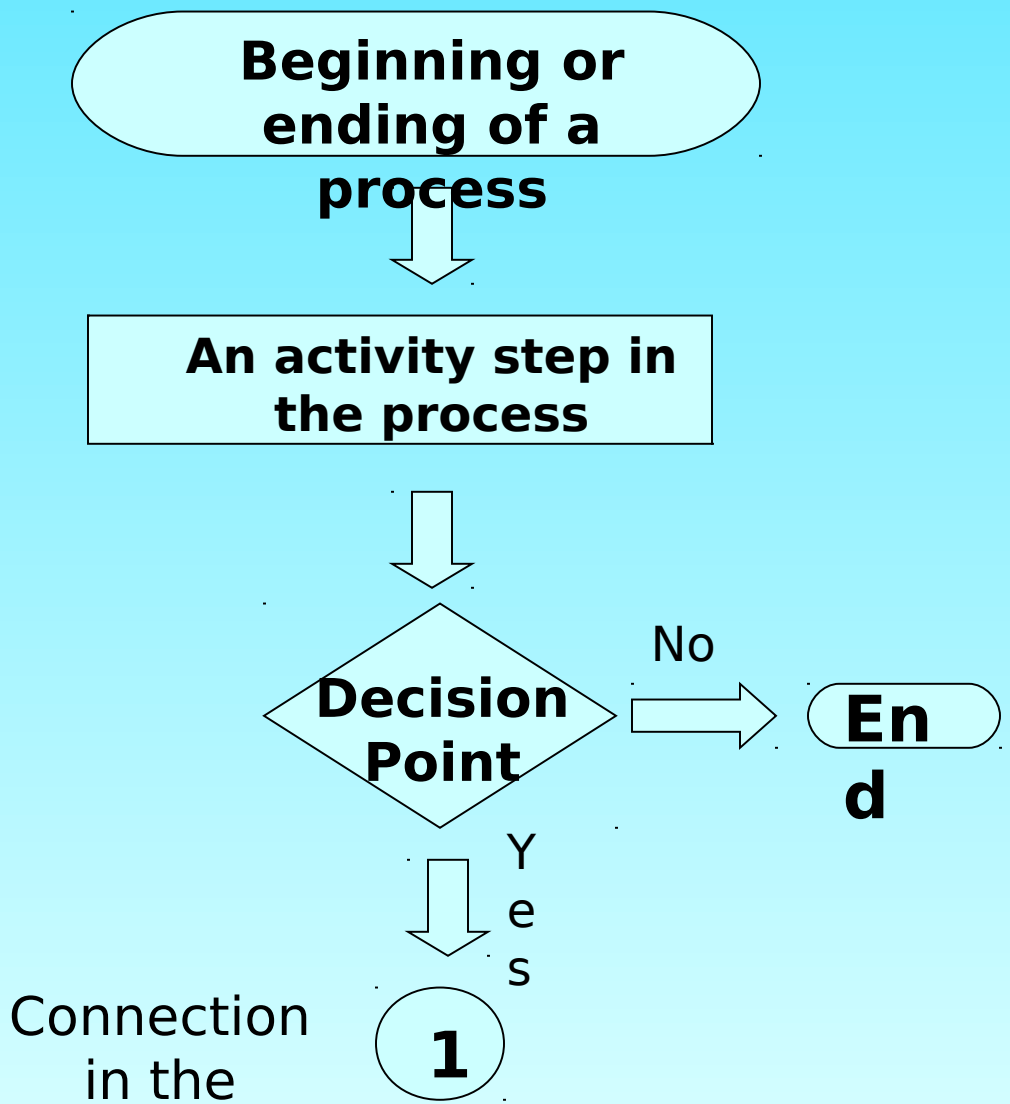
Figure 1.15
Flow Diagram of the Red Bead Experiment

Used by teams to:

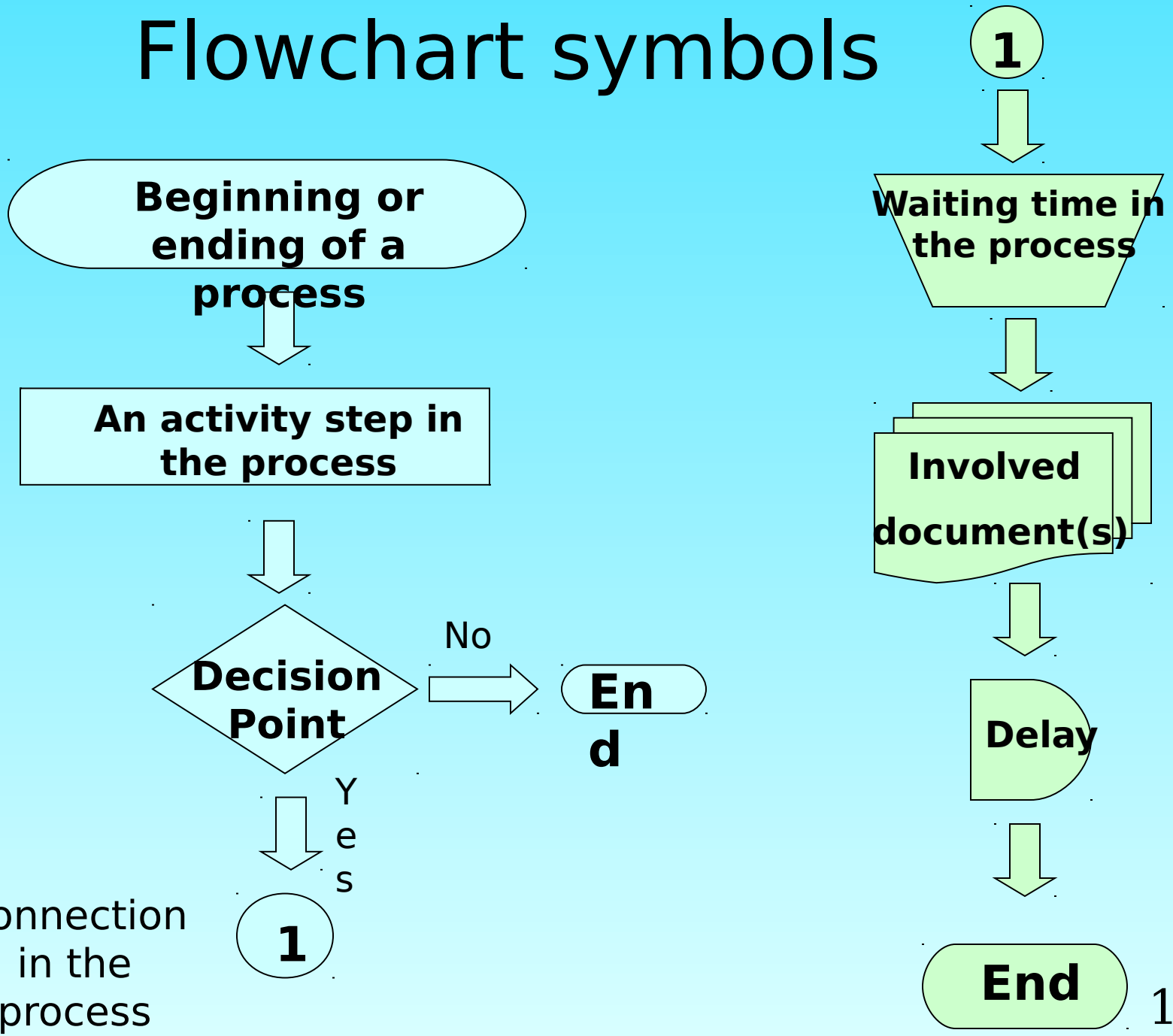
- **Track the flow of information, paper, material, or people through the system of delivering a service.**
- **Identify waste and rework**
- **Direct the team in data collection**



Flowchart symbols



Flowchart symbols



Constructing a Process Flowchart

Step 1 - Define the process

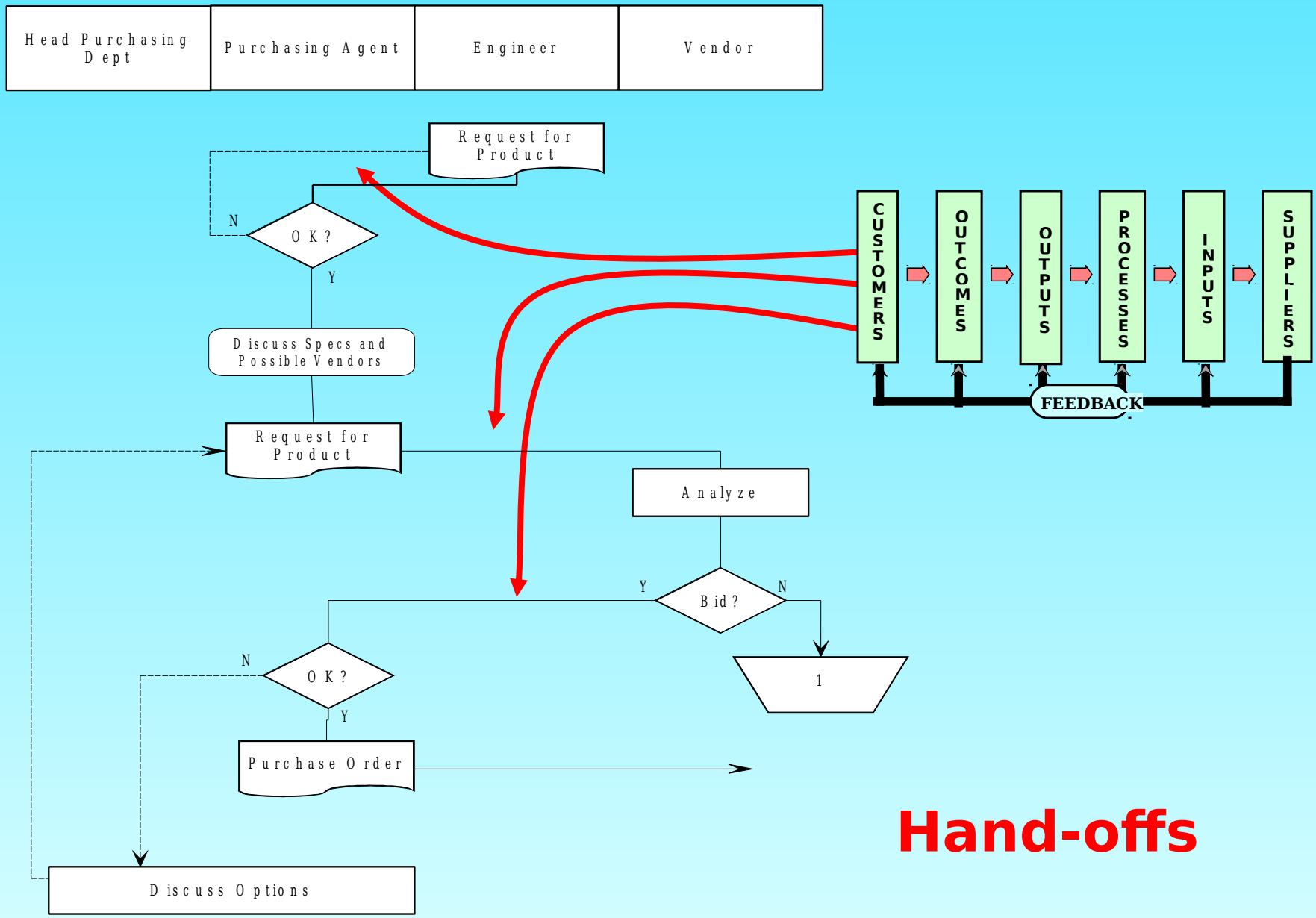
Step 2 - Identify the steps in the process

Step 3 - Draw the flowchart

Step 4 - Determine the time, distance or cost for each

Analyze the Flowchart

- Can any repeated operations be eliminated?
- How can each “hand-off” be qualified as a potential measure of effectiveness (COOPIS)?
- Are there ways to shorten or eliminate delays?
- Is there a point in the process that slows or restricts the flow?
- How can we improve the sequence of the operations to
  make the process more effective?
- Can we reduce or eliminate having to correct , change, add, or recycle something in the process?
- Is there a better way!


Head Purchasing Dept
Purchasing Agent
Engineer
Vendor
Request for Product
N
OK?
Y
Discuss Specs and Possible Vendors
Request for Product
Analyze
Y
Bid?
N
1
N
OK?
Y
Purchase Order
Discuss Options
CUSTOMERS
OUTCOMES
OUTPUTS
PROCESSES
INPUTS
SUPPLIERS
FEEDBACK

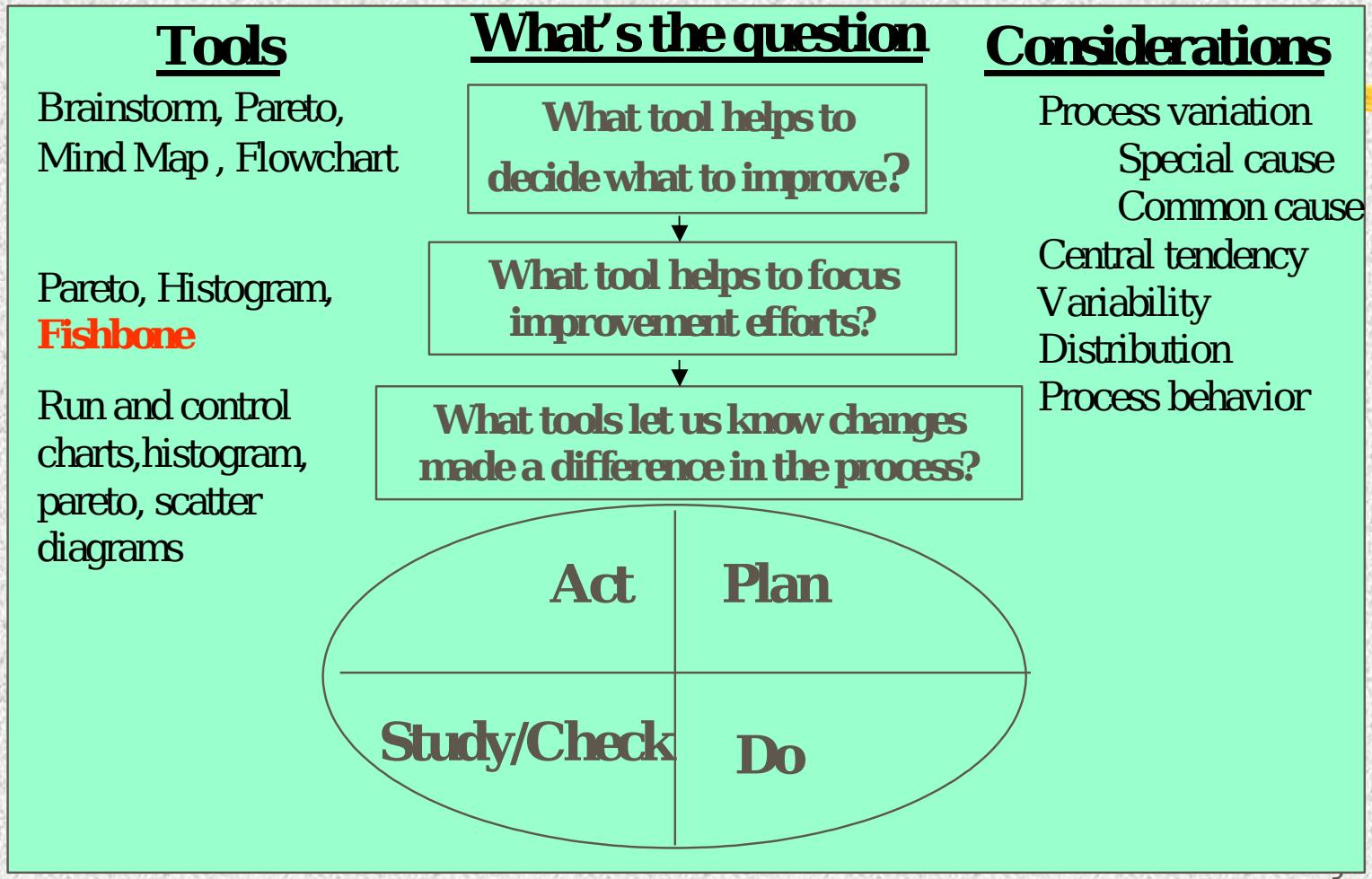
Hand-offs

Exercise:

Flowchart the process identified in your selected problem

Fishbone or Ishikawa Diagram

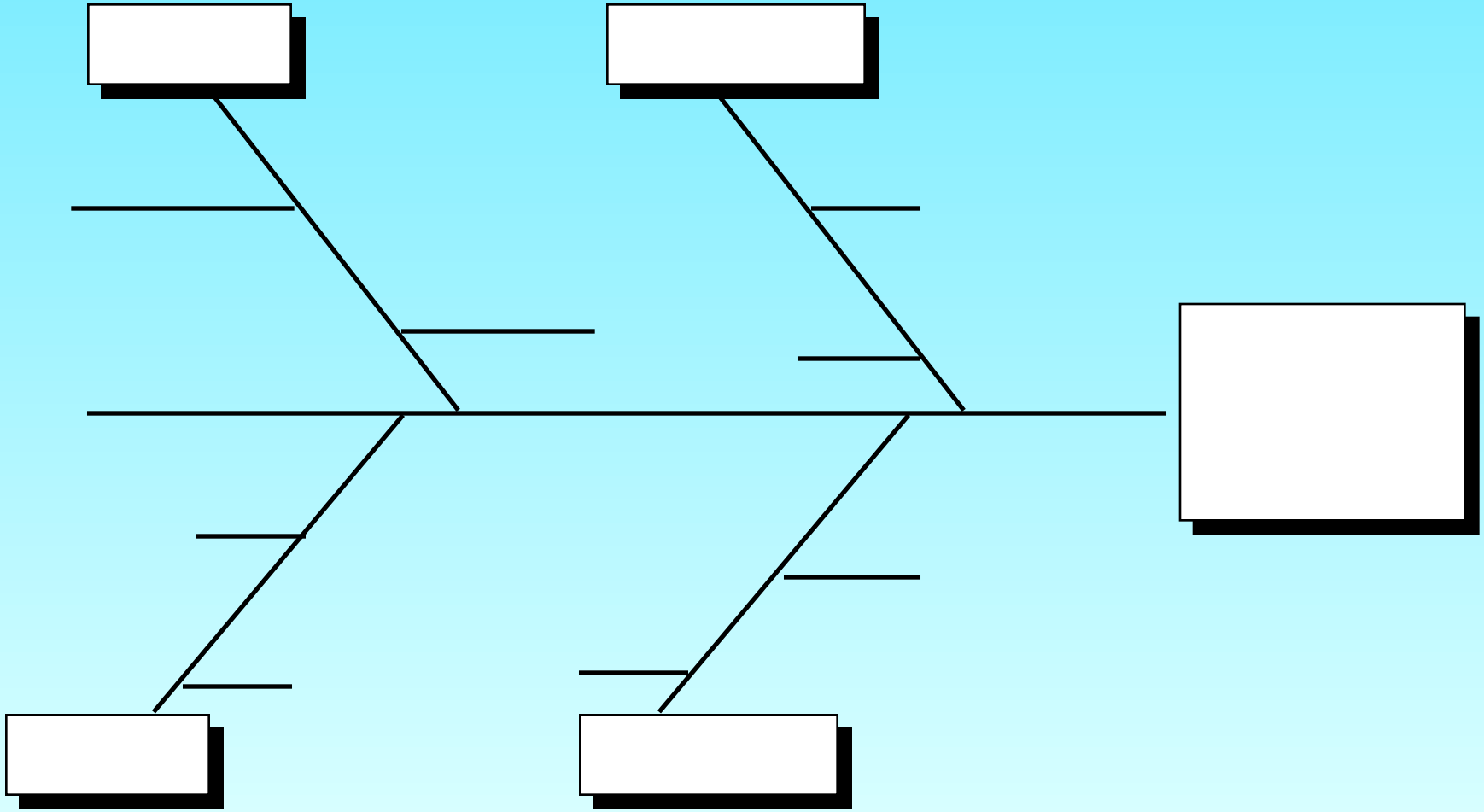
CYCLE FOR LEARNING AND IMPROVEMENT



OBJECTIVES

- Discuss the rationale for identifying possible causes and the need to confirm them with data
- Construct a cause and effect diagram and apply it to a problem

CAUSE AND EFFECT DIAGRAM



PURPOSE

- Aids in getting to the “Root Cause”
- Identifies possible causes of variation.
- Used to identify the Key Process Variables.
- Provides guidance for data collection.
- Can be used for organizing the findings of a brainstorming session

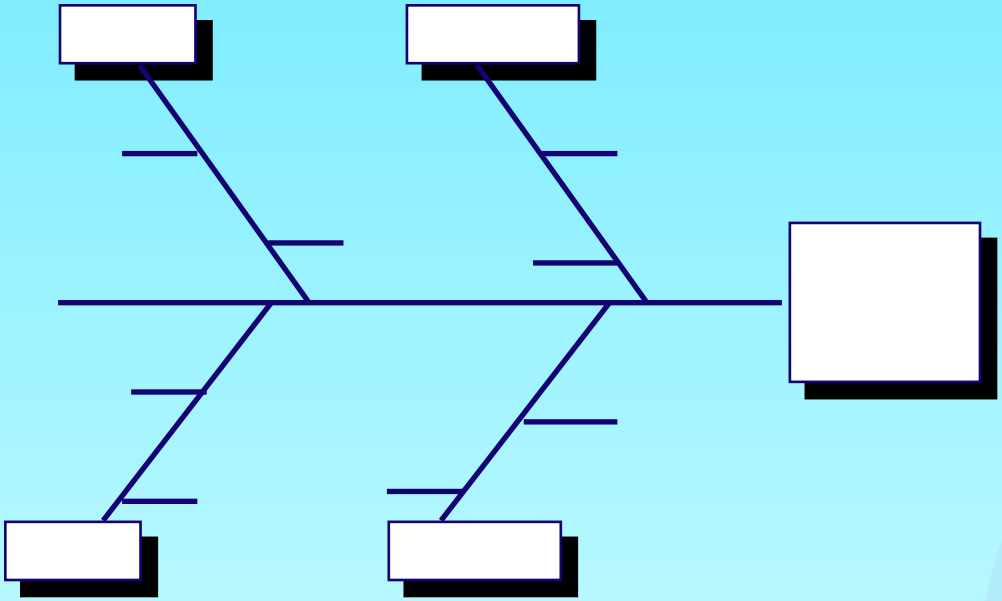
HISTORY

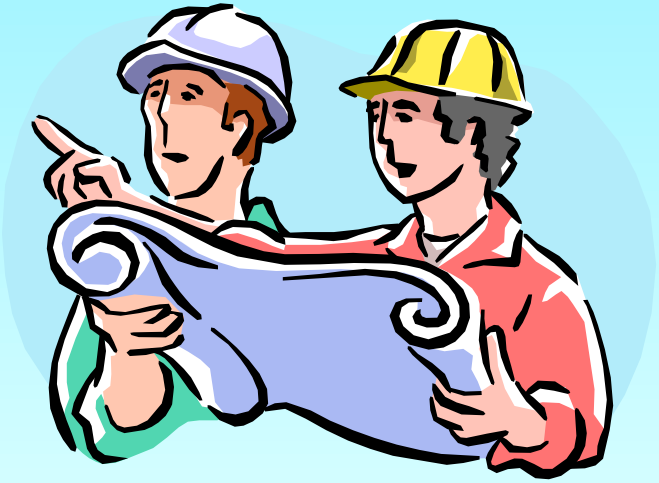
- Developed by Kaoru Ishikawa (1943)
  - Ishikawa Diagram.
  - Fishbone Diagram.
  - Cause-Effect Diagram (C-E)

ADVANTAGES

- Focuses the attention of the team.
- Provides a graphic representation.
- Communicates to others.

CONSTRUCTING A C-E DIAGRAM





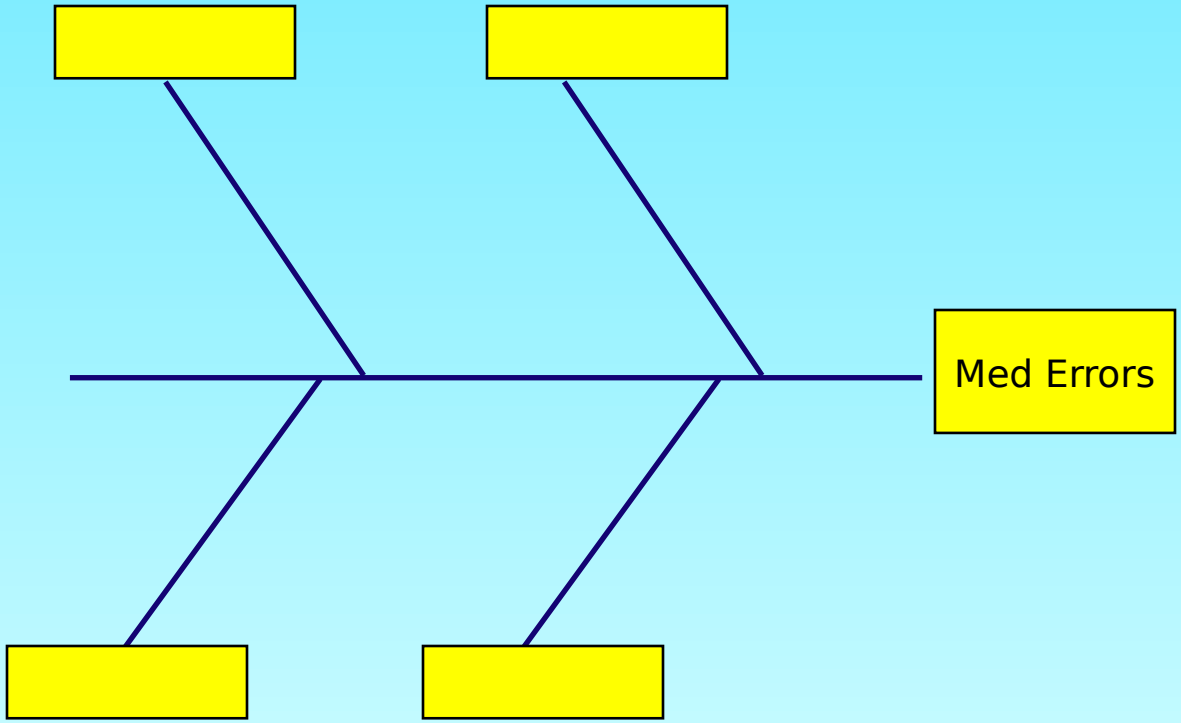
STEP 1

- Define the effect.
- Add effect to box

Med Errors

STEP 2

- Add effect to box
- Identify major possible causes.



METHODS FOR IDENTIFYING POSSIBLE MAJOR CAUSES

- Brainstorming
  - Unedited possibilities.
  - When dealing with problems that may need a creative solution.
- Step by Step Method
  - Usually takes less time.
  - Quality of relationship is usually better.

SCHEMES FOR IDENTIFYING POSSIBLE MAJOR CAUSES

- Manufacturing

  (5 M's)

  - Manpower
  - Material
  - Methods
  - Machines
  - Measurements

- Services

  (5 P's)

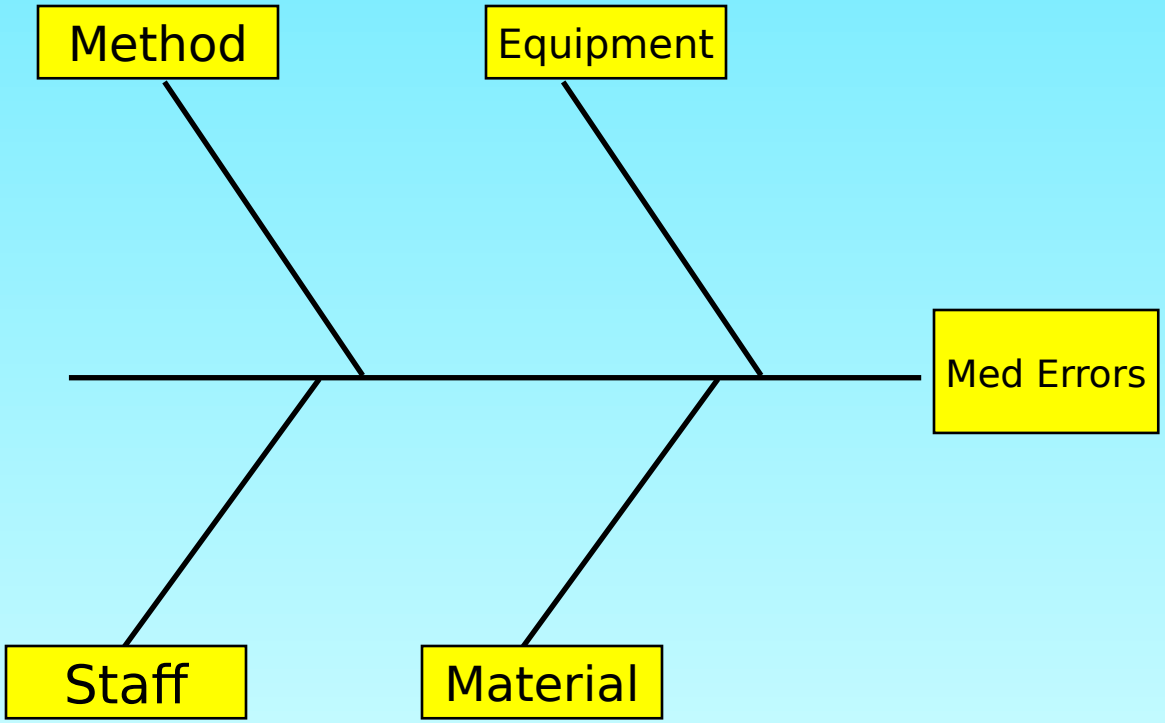
  - People (Employees)
  - Provisions (Supplies)
  - Procedures
  - Place (Environment)
  - Patrons (Customers)

IDENTIFYING POSSIBLE MAJOR CAUSES

- Internal functioning or operation of a team. (GRRP)
  - Goals
  - Roles
  - Relationships
  - Procedures
- The 4 W's
  - What
  - Why
  - When
  - Where

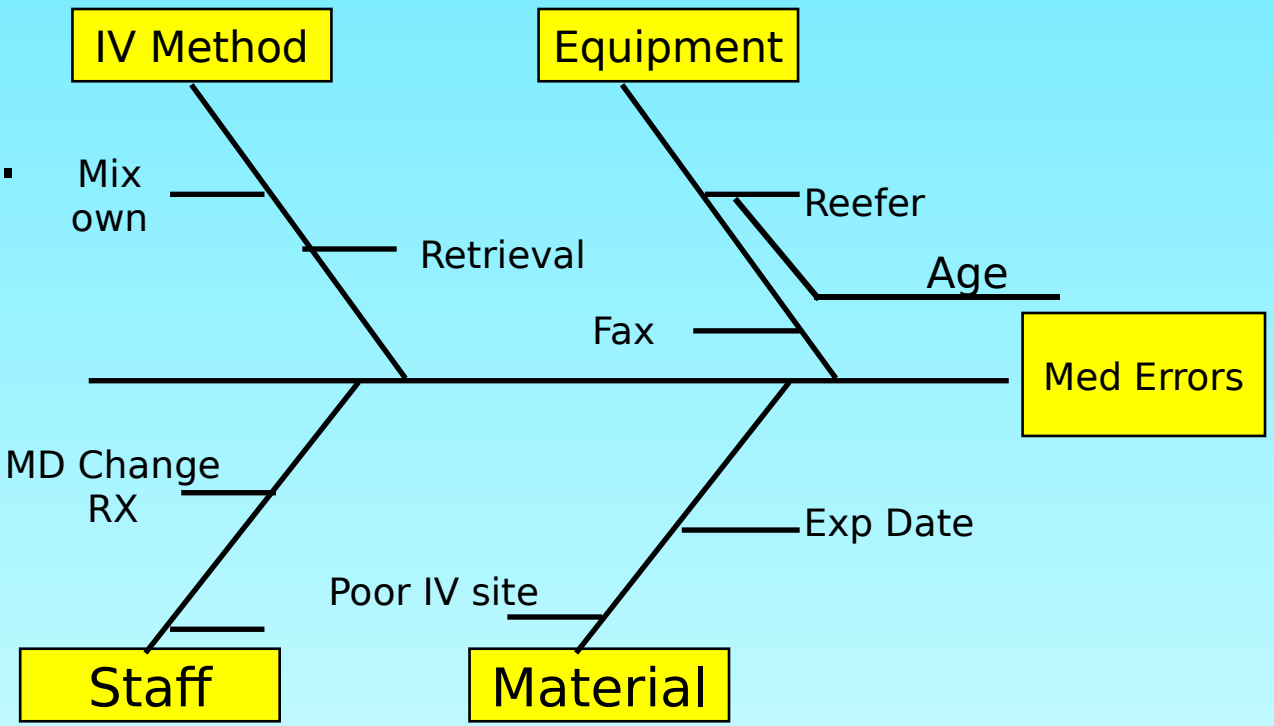
STEP 3

- Add effect to box
- Identify possible major causes.



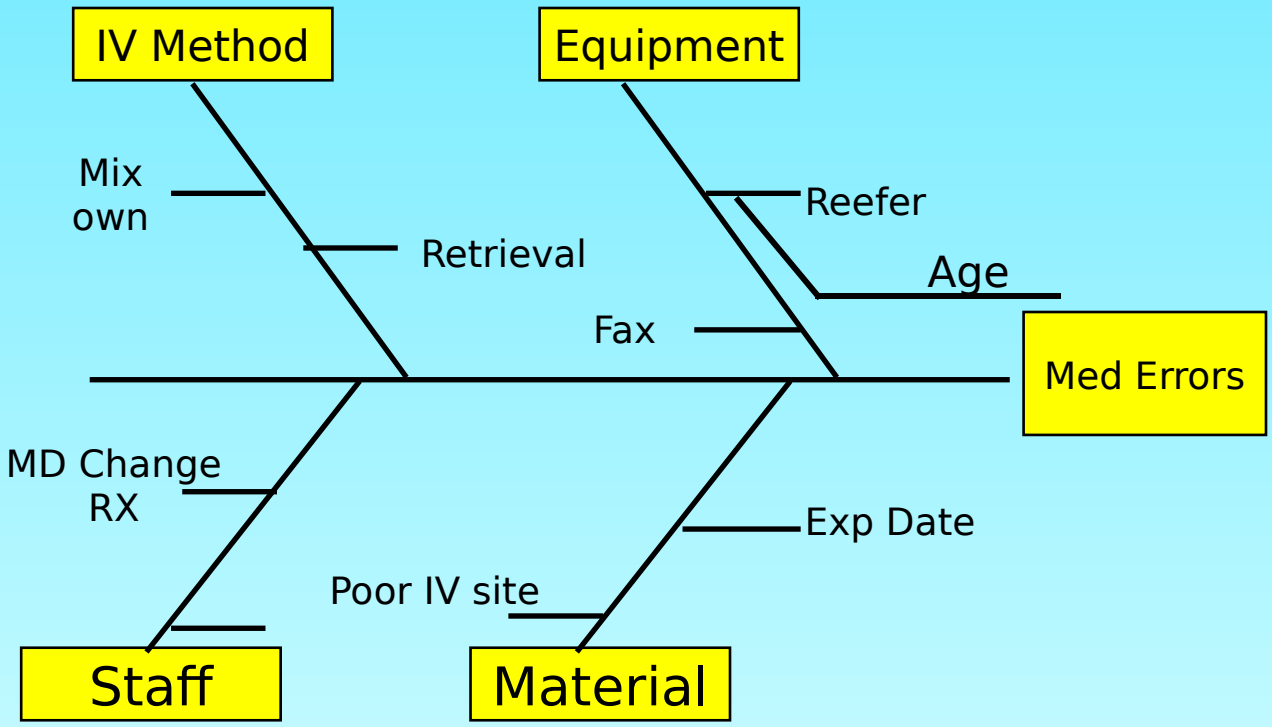
STEP 4

- Identify the possible major causes.
- Add secondary causes



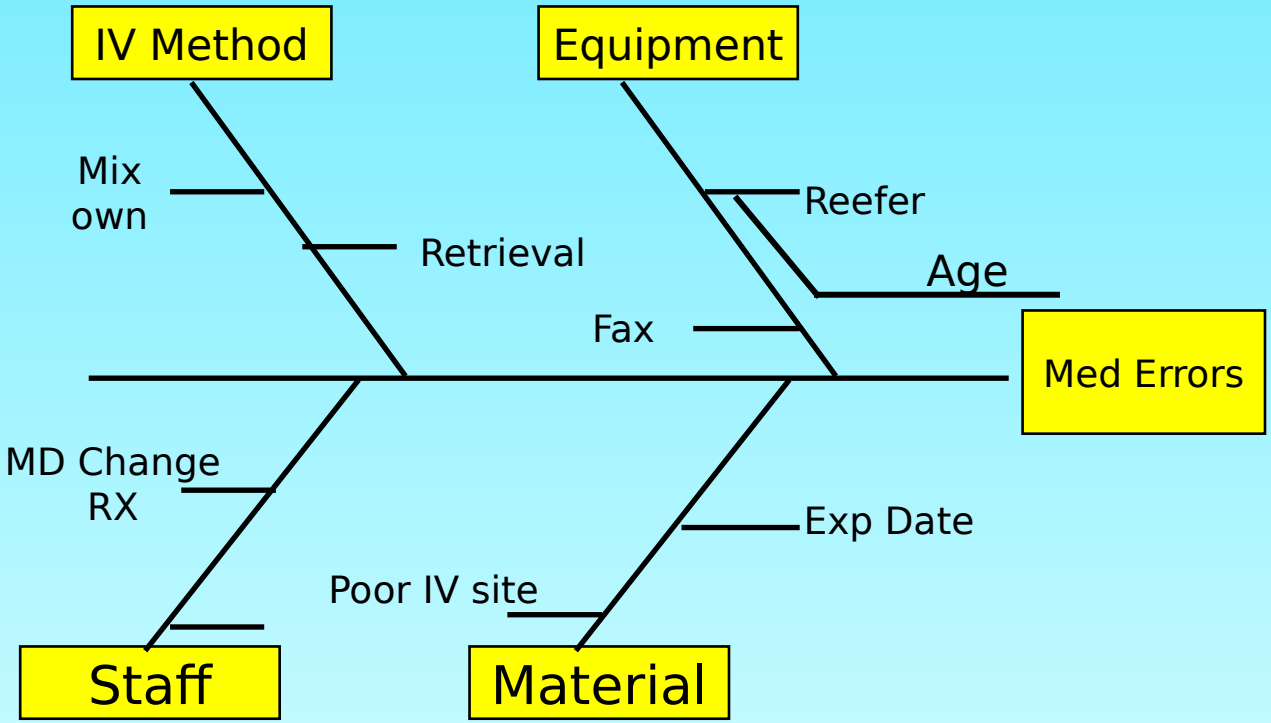
STEP 5

- Add secondary causes
- Add subsidiary causes if needed



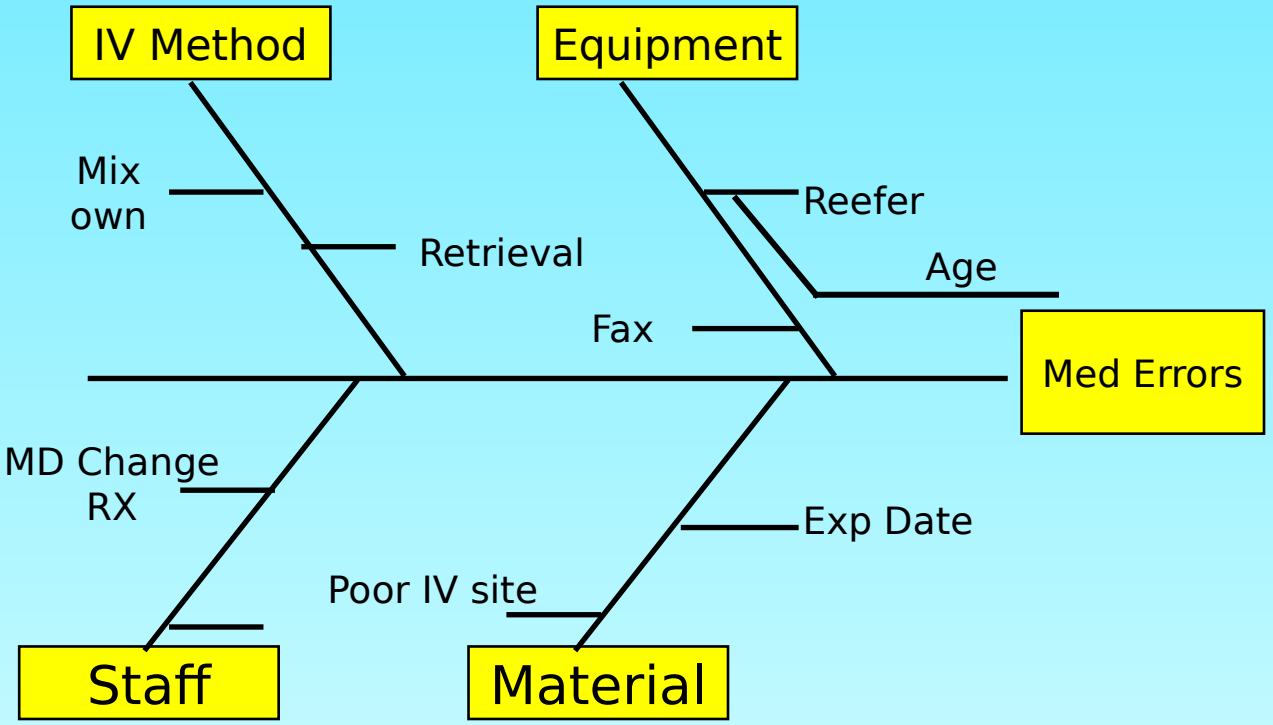
STEP 6

- Add subsidiary causes if needed.
- Continue until exhaust cause inquiry (+5 “why”).



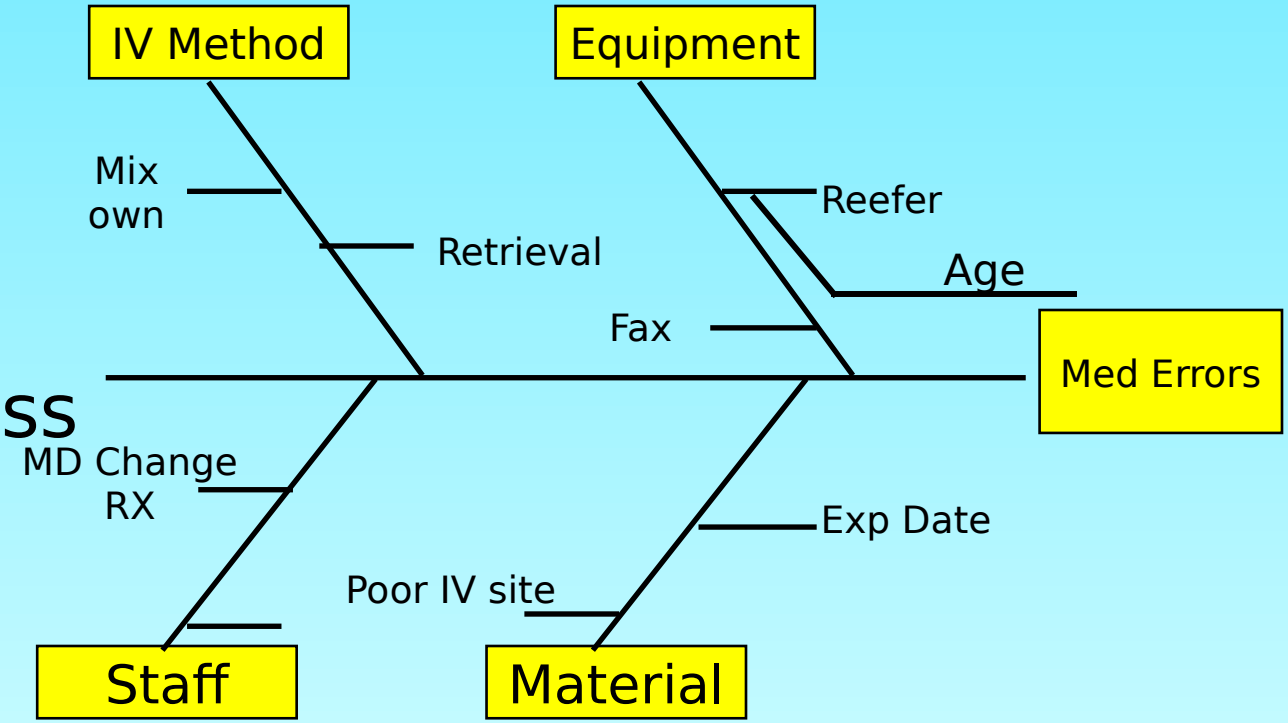
STEP 7

- Continue until exhaust cause inquiry (+5 “why”).
- Validate <u>logical</u> causes.



STEP 8

- Validate <u>logical</u> causes.
- Check for Completeness .



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C-E DIAGRAM EXERCISE

- Each table has 20 minutes for completion.
- Use wall paper for C-E diagram.
- One member of team will present results to class.
- May use Brainstorming or Step by Step method.
- “KISS”